IDAHO DEPARTMENT OF LANDS

FOREST PEST FACT SHEET

Defoliating Insects

Defoliating insects are a diverse group of forest insects that are very common in Idaho forests. Defoliators eat foliage (needles), and damage can vary depending on the species. Larvae are the damaging stage, and the adults do not feed and look quite different. Heavy defoliation can kill trees outright, or increase the likelihood of bark beetle attack later. The important species are summarized on the reverse side.

Life Cycle

Most defoliators have a one year life cycle, but there are variations on how the insects overwinter. Some overwinter in the egg stage, while others overwinter as larvae or pupae. Some defoliators such as the Douglas-fir tussock moth and pine butterfly cause outbreaks that are of short duration (1-3 years) but can cause significant damage. Other species such as the western spruce budworm can have chronic outbreaks that last for many years. This type of damage can weaken trees and increase susceptibility to other tree killing agents such as bark beetles.

Management

Unlike bark beetles which spend almost their entire lives inside the bark of a tree, defoliators can be managed through spraying, though this is not always the best option. Douglas-fir tussock moth and western spruce budworm prefer species such as Douglas-fir and grand fir that are often overabundant in Idaho forests. These two tree species also have other forest health issues such as root disease, which decrease their suitability for many sites. Managing the species in a stand to encourage nonhosts such as pines or western larch and/or altering the stand structure (avoiding multi-storied stands) is a better long-term approach. In some situations (such as larger single species plantations) spraying may be an option. However, recent federal regulations regarding forest canopy pest control may make this alternative less attractive.

For more information:

IDL website: http://www.idl.idaho.gov/forestry/forester-forums/index.html
U.S. Forest Service Management Guide: *https://fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5186684.pdf*

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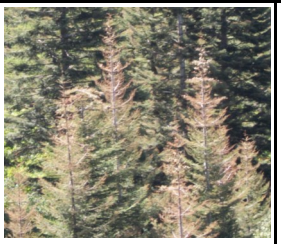
Species	Larval (damaging) stage	Primary Hosts	Overwintering Stage/ location	Typical Damage	Key Management Strategy
Douglas-fir Tussock Moth 		Grand fir, Douglas-fir, subalpine fir, Engelmann spruce	Egg masses on branches or foliage		Manage stands for non-hosts (pines and larch), discourage multi-stored stands
Western Spruce Budworm 		Grand fir, Douglas-fir, subalpine Fir, Engelmann spruce, western larch	Second instar (stage) larvae on trunk or branches (under bark scales)		Manage stands for non-hosts (pines and larch), discourage multi-stored stands
Larch Casebearer 	Larva inside case 	Western larch	3rd instar (stage) larvae on branches		Maintain healthy stands, damage usually minor
Sawflies 		Pines, firs, Douglas-fir, western larch	Most overwinter as eggs inserted into needles		Damage can be observed in pine plantations, spraying is an option if severe
Pine Butterfly 		Ponderosa pine	Eggs laid on needles		Management of pine butterfly in this area is not usually necessary